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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/199,677 11/25/98 ROSENTHAL

P OLT-20

EXAMINER

MM91/0126

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EAST HARTFORD CT 06108

ART UNIT

PAPER NUMBER

2857

DATE MAILED:

01/26/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/199677

Applicant(s)

ROSENTHAL et al.

Examiner

B. Bui

Group Art Unit

2857

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Response

A SHORTENED STATUTORY PERIOD FOR RESPONSE IS SET TO EXPIRE 03 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a response be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for response is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to respond within the set or extended period for response will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 11/25/98
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-21 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-3, 7-10, and 13-21 is/are rejected.
- ☒ Claim(s) 4-6, 11-12 is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
 - ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
 - ☐ received in Application No. (Series Code/Serial Number) _____.
 - ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Notice of References Cited, PTO-892
- ☒ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

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DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 13-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 recites both an apparatus and method steps of using the apparatus, it is unclear what apparatus or method that applicant is intending to encompass. See MPEP 2173.05(p).

Therefore, claims 13-21 are rejected under 35 U.S.C. 112, second paragraph.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-3, 7- 10, 13, 14 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al.(U.S. Patent No. 4,881,823).

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With respect to claims 1, 3, 9, and 13-14 Tanaka et al. teach a method for determining the temperature of a heated target material comprises: measuring, at an oblique take-off angle and at at least one wavelength, radiance at at least two linearly independent polarizations (see, e.g. column 9, lines 14-19); computing a polarized radiance ratio of the measured radiances to determine the associated polarized emissivity ratio; and applying at least one additional constraint to compute the value of at least one of the emissivities to constitute the polarized emissivity ratio to determine at least one additional parameter of surface changes as roughness , thickness, etc. (see, e.g. column 4, lines 36-65 and column 6, lines 13-68); and determining the temperature relates to Planck function (see, e.g. column 5, lines 26-31). It is noted that the blackbody function is defined by the Planck's spectral distribution as taught by Tanaka et al. (see, e.g. column 2, lines 67-68). It would have been obvious to one of ordinary skill in the art that when having the radiance and emissivity at a selected wavelength correlation with Planck function as expressed in term of equation 4 of Tanaka et al. (Column 5, line 31) to determine in accuracy the temperature on the surface of a heated object.

With respect to claims 2, 7, 8, 10, and 18-21, Tanaka et al. teach the polarizations, one is determined in parallel and the other is determined in perpendicular direction with reference to the take-off plane; providing look up table in which emissivity values correlate with emissivity ratio (see, e.g. column 5, lines 1-19, and column 6, line 33 to column 7, line 10). It is noted that the repeating steps to indicate another location of a heated surface material in the arrangement of

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measurement of temperature and thickness of layer during a deposition or coating process are well known in the semiconductor process (see Background of the present Application).

5. Claims 15-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanaka et al.(U.S. Patent No. 4,881,823) in view of Duncan et al. (U.S. Patent No. 5,501,637).

Tanaka et al. do not expressly teach polarization selective means is a polarizer selected from the group consisting of wire grid, glan, and Brewster polarizers; wavelength selective means is selected from the group of consisting of interference filter sets, tunable filters, gratings, prisms, Michelson interferometers, and FT-IR spectrometer, and sensor comprises an FT-IR spectrometer. Duncan et al. teach these limitations (see Figure 3). It would have been obvious to one of ordinary skill in the art to modify the system of Tanaka et al. with the teachings as taught by Duncan in order to make a system more accurate when making polarization modulating to use to determine the emissivity value.

Allowable Subject Matter

6. Claims 4-6, and 11, 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

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7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The reference of Tanaka et al. (U.S. Patent No. 4,881,823) discloses a radiation thermometry.

The reference of Duncan et al. (U.S. Patent No. 5,501,637) discloses a temperature sensor and method.

The reference of Morrison et al. (U.S. Patent No. 5,403,433) discloses a method and apparatus for monitoring layer processing.

The reference of Morrison, Jr. et al. (U.S. Patent No. 4,985,858) discloses a method and apparatus for temperature determination.

The reference of Sawin et al. (U.S. Patent No. 5,450,205) discloses an apparatus and method for real-time measurement of thin film layer thickness and changes thereof.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bryan Bui whose telephone number is (703) 305-4490. The examiner can normally be reached on Monday-Thursday from 7:30am to 4:30pm. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff, can be reached on (703) 308-1677.

Any response to this action should be mailed to:

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or faxed to:

(703) 308-7382 (for informal or draft
communications, please label "PROPOSED" or
"DRAFT")

*Hand-delivered responses should be brought to Crystal Plaza 4,
Arlington. VA., Fourth Floor (Receptionist).*

Any inquiry of a general nature or relating to the status of
this application or proceeding should be directed to the
receptionist whose telephone number is (703) 308-0956.



B Bui

1/16/2001